

beneath, trochanters, femora, anterior areas of pro-, meso-, and metasterna, and apical abdominal segment testaceous; tibiæ and tarsi black; apical abdominal segment with two ochraceous apical spots. Antennæ mutilated; scutellum sparingly and coarsely punctate, depressed from behind base, and with a very distinct central carination on posterior half; corium thickly and finely punctate.

Long. 15 millim.; exp. pronot. angl. 7 millim.

Hab. Mashonaland, Salisbury (*G. A. K. Marshall*).

Subfam. *ACANTHOSOMINÆ*.

Genus *GALGACUS*.

Galgacus, Dist. Ann. & Mag. Nat. Hist. (7) vol. iv. p. 435 (1899).

Galgacus macer, Walk. (*Dictyotus*) Cat. Het. i. p. 182. n. 14 (1867); Dist. *loc. cit.*

In revising Walker's species I was (*supra*) compelled to found a new genus for the reception of the species he had described as a *Dictyotus*. The tarsi, however, in the unique type were not available for examination, so that its position was necessarily uncertain. I have since received a specimen for identification from Dr. Montandon, which proves the tarsi to be two-jointed, and thus locate *Galgacus* in the *Acanthosominæ*.

XIII.—*Descriptions of Brazilian Coccidæ*.

By ADOLPH HEMPEL, S. Paulo, Brazil.

[Continued from p. 561.]

Ceroplastes lucidus, Hempel.

Adult female scale subglobose; wax brittle, thin, semi-transparent, reddish brown to yellowish brown. Dorsal nucleus prominent; lateral nuclei inconspicuous; the wax is depressed about the nuclei, making the surface rough and nodose. Divisions of the plates indistinct or obsolete. In the younger specimens the wax is amber-coloured and the surface more nodose; in the older specimens the surface becomes more even. Length 4.75 millim.; width 4.50 millim.; height 3.75 millim. Denuded of wax it is light brown, with five small humps, two on each side and one on the anterior end. Dorsum convex; derm shiny, hard; caudal

horn very small and dark brown. On the abdominal margin there is a small five-lobed flange. Anal cleft short, scarcely 1 millim. long. Boiled in a solution of KOH it colours the liquid reddish brown.

Antennæ variable, of six joints, all of which bear hairs. Length .198–.230 millim. Length of joints: (1) 31, (2) 26–31, (3) 75–89, (4) 18–22, (5) 22, (6) 26–35. Approximate formula: 3 6 (1 2) 5 4 or 3 (6 1 2) (5 4). Legs short. Length of joints of first pair of legs: coxa 79, femur with trochanter 114, tibia 75, tarsus 53, claw 18, digitules of claw 26. Digitules of claw large, with widely expanded ends; tarsal digitules long and slender, with expanded ends. Rostrum well developed, placed just behind the insertion of the first pair of legs. Each stigmatal area is characterized by thirty to thirty-six cone-shaped spines and as many large round spinnerets. Around the lateral margin of the body there are a few short hairs. Many small glands are scattered over the dorsal and ventral derm.

Male scale white, very small, elliptical, with a slight dorsal keel. Length 1.25 millim.; width .50 millim.

Hab. Ypiranga. Most abundant on *Baccharis dracunculifolia*, but also occurs on other plants of this genus.

Ceroplastes purpureus, Hempel.

Adult female scale thin, small, light brown, divided into seven distinct plates. The general outline is that of a rectangle with the sides nearly perpendicular. In the younger specimens the plates are distinct and are separated from each other by dark brown lines; in the older specimens the dorsum becomes more convex, the plates become indistinct, and the colour changes to purple. Dorsal nucleus present, white, slightly elevated; lateral nuclei indicated by slight depressions. Wax very thin and dry, but tough. Length 2.75 millim.; width 2.10 millim.; height 2.1 millim. Denuded of wax derm hard, shining, dark red, roughened by many small gland-pits. Caudal horn very small, dark brown. Boiled in a solution of KOH it colours the liquid dark red. The derm is chitinized and becomes light brown in colour.

Antennæ of six joints, all of which bear hairs. Length .178–.206 millim. Length of joints: (1) 22–26, (2) 22–26, (3) 70–79, (4) 18–22, (5) 18–22, (6) 28–31. Approximate formula: 3 6 (1 2) (4 5). Legs short. Length of joints of first pair of legs: coxa 53, femur and trochanter 102, tibia 66, tarsus 48, claw 13, digitules of claw 26. Coxa with a short spine on the proximal end. Tarsal digitules long, of unequal

size, with expanded ends; digitules of claw, one large the other smaller, both with widely expanded ends. Rostrum well developed, usually placed about midway between the first and second pair of legs. Rostral loop extending beyond the second pair of legs. Each stigmatal area is characterized by twenty to twenty-five conical spines and as many spinnerets. Around the lateral margin of the body there is a simple row of short hairs set close together. Derm with a number of small glands.

Hab. Ypiranga. On the twigs of *Miconia* sp. and other bushes.

Ceroplastes formosus, Hempel.

Female scale rectangular; dorsum convex; wax bright lemon-yellow in colour, uneven, divided into seven distinct plates, situated two on each side, one on dorsum, one on the anterior end, and one on the posterior end. Dorsal nucleus large, white, usually covered with a black fungus; lateral nuclei not visible. The wax is lighter in the centre of lateral plates than on the edges, is hard and tough, and deeply depressed about the dorsal nucleus. Length 4 millim.; width 3 millim.; height 2.75 millim. Boiled in a solution of KOH the derm becomes transparent and soft. Caudal horn 500 millim. long, dark brown in colour.

Antennæ variable, of six joints, all of which bear hairs. Length .202-.224 millim. Length of joints: (1) 31-35, (2) 26, (3) 70-79, (4) 18-22, (5) 22, (6) 35-40. Approximate formula: 3 6 1 2 (4 5) or 3 (6 1) 2 (4 5). Legs short. Length of joints of first pair of legs: coxa 75, trochanter and femur 93, tibia 75, tarsus 66, claw 18, digitules of claw 31. Tarsal digitules 44. Digitules of claw of unequal size, one large and wide, with expanded end, the other smaller and narrower. Tarsal digitules very long and slender, with expanded ends. Coxa with two short spines on the proximal end; the tarsus frequently has an incision on the margin, giving it the appearance of being jointed. Rostrum between the first pair of legs; rostral loop extends to the third pair of legs. Anal ring apparently with six hairs. Each stigmatal area is characterized by about twenty conical spines and a few round spinnerets. The conical spines are situated on the entire margin of the body, except in the cephalic and caudal regions. The derm bears numerous small spinnerets.

Hab. Poços de Caldas, State of Minas Geraes. On twigs of *Eugenia* sp.

Ceroplastes rarus, Hempel.

Adult female scale oval; dorsum very convex, conical, coming to a point; wax thin, dry, brittle, creamy white, divided into seven distinct plates—two lateral on each side, one dorsal, one on the anterior end, and one on the posterior end. Nuclei large, conspicuous, dark brown, oval; posterior plate with two nuclei. The plates are divided from each other by areas of brown wax. The wax in the plates is arranged in concentric layers, those on the dorsum round, those on the sides square. Numerous fine lines also radiate from the nuclei. Length 5.75 millim.; width 4.50 millim.; height 4 millim. Denuded of wax derm hard, shiny, smooth, light brown, with eight small humps, situated two on each side, one on the anterior end, one on the dorsum, and one on each side of the caudal horn. Caudal horn small, short, dark brown, placed horizontally. Length 5 millim.; width 4 millim.; height 3.50 millim. Boiled in a solution of KOH it colours the liquid light yellow. The dorsal derm remains chitinated and opaque.

Antennæ of seven joints, all but joint 3 bearing hairs. Length .350–.391 millim. Length of joints: (1) 53–66, (2) 44, (3) 48–57, (4) 97–106, (5) 33–35, (6) 31–35, (7) 44–48. Approximate formula: 4 1 3 7 2 (5 6) or 4 (1 3) (7 2) (5 6). Legs ordinary. Length of joints of the first pair of legs: coxa 133, femur and trochanter 191, tibia 123, tarsus 97, claw 22, digitules of claw 36. Tarsal digitules very long and slender, with the ends widely expanded. Digitules of claw of equal size, large, wide, with widely expanded round ends. Rostrum placed nearer the second pair of legs than the first. Rostral loop short, not extending to the second pair of legs.

Hab. Ypiranga. On the twigs of an indigenous shrub.

Ceroplastes cultus, Hempel.

Adult female scale irregularly oval, truncated posteriorly; dorsum convex, smooth, shiny, creamy white, divided into seven plates by bright brown lines. The wax is thin and hard, and slightly depressed about each nucleus. Dorsal nucleus oblong, large, the lateral and terminal nuclei small, subcircular; all the nuclei are bright brown, with a small patch of white wax in the centre. The caudal plate has two nuclei. The dorsal plate is the largest and subcircular in outline. Fine lines radiate from all the nuclei and a few concentric rings are also present. Around the lateral margin the wax is thicker and nearly white. Length 5 millim.;

width 4 millim.; height 3.6 millim. Denuded of wax derm hard, brown; caudal horn black, small. There are three small tubercles on each side and one on the anterior end. Length 4 millim.; width 3 millim.; height 2.5 millim. Boiled in a solution of KOH the derm remains hard and opaque.

Antennæ variable, of seven joints, all except joint 3 bearing hairs. Length 272-307 millim. Length of joints: (1) 44, (2) 35-44, (3) 40-48, (4) 66-79, (5) 26-31, (6) 26, (7) 35. Approximate formula: 4 (3 1 2) 7 (5 6). Legs long. Length of joints of first pair of legs: coxa 128, femur and trochanter 168, tibia 133, tarsus 84, claw 26, digitules of claw 44. Tarsal digitules very long, slender, with expanded ends. Digitules of claw of equal size, large, with widely expanded ends. Rostrum situated about midway between the first and second pair of legs; rostral loop short, scarcely longer than the rostrum and mentum. Each stigmatal area is characterized by about thirty conical spines and as many large round spinnerets. Around the lateral margin there is a simple row of short hairs, each tuberculate at the base. The dorsal derm is composed of polygonal plates and contains many small glands. The ventral derm also bears some glands near the margin.

Male scale small, elongate, flat, with seven tufts of white waxy secretion around the margin and one elongate tuft on the dorsum. The posterior end also bears a few threads of white secretion. Length 1.50 millim.; width .75 millim.

Hab. Ypiranga. On the stem of the plant *Erigeron canadensis*, L.

Ceroplastes cuneatus, Hempel.

Adult female scale irregularly oval in outline, truncated posteriorly, convex, wax coming to a blunt point on the dorsum, divided into seven indistinct plates. Colour creamy white, with light brown lines between the plates. Caudal plate with two nuclei. All the nuclei deep brown, with a bit of white secretion in the centre. The wax is much depressed about the nuclei and thickened around the margin. A deep sulcus runs around the dorsal plate, thus giving the surface a rough nodular appearance. Frequently a hood of wax is formed from behind over the dorsal nucleus, often partly covering it. Length 4.25 millim.; width 3.75 millim.; height 3.25 millim. Denuded of wax the derm is brown, shiny, hard. The lateral humps are faintly indicated, but not distinct. Length 3.25 millim.; width 2.50 millim.; height 2.00 millim. Caudal horn very small, brown.

Antennæ variable, of seven joints, all but joint 3 bearing hairs. Length 312–364 millim. Length of joints: (1) 44–53, (2) 35–44, (3) 48–57, (4) 84–101, (5) 26, (6) 31–35, (7) 44–48. Approximate formula: 4 3 1 (7 2) 6 5 or 4 (3 1 7) 2 6 5. Legs long. Coxa with two short spines on the proximal end. Length of joints of the first pair of legs: coxa 106, trochanter and femur 194, tibia 120, tarsus 97, claw 20, digitules of claw 35. Tarsal digitules very long, with expanded ends. Digitules of claw of equal size, large, with widely expanded ends. Rostrum situated between the first pair of legs. Rostral loop extending to the second pair of legs. Anal ring apparently with six hairs. Each stigmatal area is characterized by about thirty conical spines and by forty to fifty round spinnerets. Around the lateral margin there is a simple row of long hairs, each one tuberculate at the base. The derm is homogeneous and contains numerous small glands.

Hab. Ypiranga. On the stems of *Erigeron canadensis*, L.

Ceroplastes formicarius, Hempel.

Adult female scale oval to subcircular in shape, small, convex, irregularly nodose, wax divided into seven plates; with a slightly thickened border around the lateral margin. Caudal plate largest, with two nuclei. All the nuclei light brown in colour, sometimes with a faint trace of white secretion. Wax soft and moist, pinkish white in colour, depressed about the nuclei, giving the nodose appearance. Length 4 millim.; width 3·25 millim.; height 2·10 millim. Denuded of wax shiny; derm chitinized, but not very hard, light brown in colour, with a slight dorsal tubercle. Caudal horn small, a little darker than the derm. Length 3·5 millim.; width 2·5 millim.; height 1·75 millim.

Antennæ variable, of seven joints, all except joint 3 bearing hairs. Length 327–389 millim. Length of joints: (1) 53, (2) 53–66, (3) 62–75, (4) 70–89, (5) 28–35, (6) 26–31, (7) 35–40. Approximate formula: 4 3 2 1 7 (5 6). Legs long; coxa with several short spines. Length of joints of first pair of legs: coxa 102, trochanter and femur 204, tibia 146, tarsus 93, claw 28, digitules of claw 41. Tarsal digitules long, with expanded ends. Digitules of claw large, with widely expanded ends. Rostrum situated between the first pair of legs; rostral loop extending to the third pair of legs. Anal ring with six hairs. Each stigmatal area is characterized by a horseshoe-shaped depression on the ventral surface and by about twenty conical spines and thirty to thirty-five large round spinnerets. The lateral margin bears

a double row of conical spines, thickly set, especially on the sides. On the anterior margin the row of spines becomes simple and also bears a few long hairs. On the posterior margin there are few spines, but more long hairs. There is also a row of short hairs on the ventral surface, just inside the row of spines. The derm bears many minute glands.

Hab. Ypiranga. On the bark of *Maytenus* sp.

This species is accompanied by a large ant, *Camponotus* sp., that constructs a covering of grass or earth around the twigs upon which the insects are massed. A small lepidopterous larva also preys upon it, and appears to be very destructive.

Ceroplastes rotundus, Hempel.

Adult female scale oval in outline; dorsum convex, rounded. Wax smooth, thin, hard and brittle, divided into seven distinct plates, light buff in colour, with brown lines between the plates. Caudal plate with two nuclei. Dorsal nucleus oval, large, the others small and nearly square, all dark brown in colour, with a small patch of white secretion in the centre. All the plates have minute radiating lines from the nuclei and concentric rings, giving them the appearance of fish-scales. Length 5 millim.; width 4 millim.; height 3.50 millim. Denuded of wax the insect is brown, derm chitinized, caudal horn small, not darker than the derm; no apparent humps are present.

Antennæ variable, of seven joints, all except joint 3 bearing hairs. Length .330-.348 millim. Length of joints: (1) 44, (2) 44, (3) 53-57, (4) 89-97, (5) 29-31, (6) 31, (7) 40-44. Approximate formula: 4 3 (1 2 7) (6 5). Legs ordinary. Length of joints of first pair of legs: coxa 97, trochanter and femur 178, tibia 114, tarsus 97, claw 20, digitules of claw 35. Tarsal digitules very long and slender, with expanded tips. Digitules of claw large, with widely expanded tips. Anal ring apparently with six hairs. Rostrum situated between the first and second pair of legs; rostral loop short, extending beyond the second pair of legs. Each stigmatal area is characterized by about twenty-five conical spines and a few round spinnerets. The lateral margin bears a few tuberculate hairs. The derm bears many small glands.

Hab. Ypiranga, State of S. Paulo. On twigs of *Maytenus*.

Ceroplastes simplex, Hempel.

Adult female scale oval, convex, slightly depressed around the dorsal nucleus; greyish white in colour. The dorsal nucleus alone is visible, and is small, elliptical, and pure

white. Wax not shiny, slightly roughened by radial furrows and depressions, not brittle and not divided into plates, but is slightly thickened around the lateral margin. Length 4.50 millim.; width 3 millim.; height 2.60 millim. Denuded of wax the derm is hard, shiny, light brown in colour, with minute spots of darker brown. There are two slight humps on each side and one on the dorsum. Caudal horn sharp, short, scarcely .500 millim. long, dark brown in colour. Length 3.50 millim.; width 2.25 millim.; height 2 millim. Boiled in a solution of KOH it colours the liquid pink and makes it turbid. The derm remains hard and semitransparent.

Antennæ variable, of seven joints, all except joint 3 bearing hairs. Length .273-.307 millim. Length of joints: (1) 44, (2) 44, (3) 44-48, (4) 66-79, (5) 22-31, (6) 22-26, (7) 31-35. Approximate formula: 4 3 (1 2) 7 (5 6) or 4 (3 1 2) 7 (5 6). Legs ordinary. Length of joints of first pair of legs: coxa 79, trochanter and femur 182, tibia 123, tarsus 79, claw 22, digitules of claw 35. Tarsal digitules long and slender, with expanded ends. Digitules of claw large, with widely expanded ends. Rostrum large, situated just behind the first pair of legs; rostral loop extending a little beyond the second pair of legs. Each stigmatal area is characterized by about thirty blunt conical spines and the same number of large round spinnerets. The lateral margin bears a simple row of hairs set widely apart. The derm bears many minute glands.

Hab. Ypiranga, State of S. Paulo. On the twigs of a plant of the order Myrtaceæ. Collected by Dr. H. v. Ihering.

Genus TECTOPULVINARIA, Hempel.

Adult female secreting an ovisac like in *Pulvinaria*. Dorsum entirely covered with a white felt-like secretion. Antennæ of eight joints.

Type *Tectopulvinaria albata*, Hempel.

Tectopulvinaria albata, Hempel.

Adult female oval; dorsum convex, entirely covered with a white felt-like secretion, which is evidently in two parts, the first around the margin, the second covering the dorsum; this latter portion has the appearance of being secreted in concentric layers. Over the secretion on the dorsum there is usually a thin transparent scale, through which the dark brown dorsal nucleus can be seen. Frequently the secretion is elevated around the edges of the scale, leaving the middle of the dorsum depressed. In the older specimens the scale

usually drops off. Margin of body depressed. Anal plates dark brown, exposed. When removed from the bark it leaves a thick ring of white secretion behind.

Denuded of wax it is oval in outline, being widest posteriorly, of a deep orange colour, with antennæ and legs brown. The lateral margin is depressed, forming a flange; dorsum convex, with a median longitudinal ridge and four or five transverse furrows. Anal cleft about .50 millim. long. Length 3.75 millim.; width 3 millim.; height 1.25 millim. Ovisac short, convex, yellowish, transversely striated, 3 millim. long and 3 millim. high. Boiled in a solution of KOH it colours the liquid an orange colour with a pink tinge. The derm becomes soft and colourless.

Antennæ variable, of seven or eight joints, eight being the typical number. All joints bear hairs. Length .476-.564 millim. Length of joints: (1) 79-89, (2) 57-70, (3) 93-111, (4) 57-66, (5) 53-66, (6) 35-48, (7) 40-44, (8) 62-70. Approximate formula: 3 1 (2 8 4 5) 6 7. Legs large; tarsus curved. Length of joints of first pair of legs: coxa 178, trochanter and femur 400, tibia 289, tarsus 173, claw 62, digitules of claw 75. Tarsal digitules slender, short, with slightly expanded ends, not extending beyond the tip of claw. Digitules of claw narrow, with ends slightly expanded. Rostrum small, situated just behind the insertion of the first pair of legs. Rostral loop extending to the second pair of legs. Anal plates triangular, the antero-lateral side shorter than the postero-lateral. Anal ring with six hairs. Around the lateral margin of the body there are several (three or four) confused rows of long sharp hairs. The ventral surface bears many round spinnerets and some smaller glands, while the dorsal surface bears numerous small oval glands.

Male scale thin, white, narrow, elliptical; dorsum and ventrum slightly convex; usually covered with a thin white secretion. Length 1.75 millim.; width 1 millim.

Adult male orange in colour, oval, widest across the thorax. Antennæ of ten joints, all bearing many hairs, joint 10 having in addition three long knobbed hairs. Length of joints: (1) 62, (2) 70, (3) 102, (4) 155, (5) 218, (6) 178, (7) 173, (8) 133, (9) 89, (10) 120. Legs long and hairy. Genital spike narrow, .480 millim. long. The last segment of the body bears three long hairs on each side of the genital spike; the other segments bear four to six shorter hairs on each side. Halteres wanting. Length of body, excluding genital spike, 1.450 millim.; width .730 millim.

Larva (just hatched).—Oval, orange-yellow in colour. The

abdomen ends in two large plates, each bearing one long terminal seta and several shorter hairs. Around the lateral margin of the body there is a simple row of long hairs. Antennæ of six joints, joint 3 the longest. Legs short; claw long, with the digitules slender and slightly knobbed. Tarsal digitules very long and slender, with the ends slightly expanded. Rostral loop very long, being coiled in a circle on the abdomen.

Hab. Ypiranga and Jundiahy, on the stems of *Vernonia polyanthus*, Less., and *Trichogonia salviaefolia*. Usually accompanied by a species of *Cremastogaster*.

Genus PROTOPULVINARIA, Ckll.

Protopulvinaria convexa, Hempel.

Adult female elliptical or oval; dorsum convex. A white ovisac is secreted below the insect, elevating the caudal end 2 millim., but leaving the cephalic end attached to the bark. Dorsum hard and shiny, usually covered with a thin white powdery secretion; this is sometimes only present in patches, sometimes it covers the entire animal. There is a slight median longitudinal ridge, and on each side two longitudinal rows of shallow gland-pits. The sides are slightly wrinkled. Colour above brownish red, usually with a median stripe of dark brown; below orange-red. Length 5.10 millim.; width 4.50 millim.; height 2 millim. Boiled in a solution of KOH it colours the liquid light brown. The derm remains chitinized and opaque.

Antennæ variable, of seven or eight joints. Antennæ of seven joints .381-.405 millim. long. All joints except joint 3 bear hairs. Length of joints: (1) 62, (2) 53, (3) 70, (4) 106-123, (5) 35, (6) 24-31, (7) 31. Approximate formula: 4 3 1 2 5 (6 7). Antennæ of eight joints .435-.467 millim. long. All joints except joints 3 and 4 bear hairs. Length of joints: (1) 66-75, (2) 66, (3) 79-84, (4) 48-53, (5) 79-84, (6) 35, (7) 31-35, (8) 31-35. Approximate formula: (3 5) 1 2 4 (6 7 8). Legs small. Length of joints of first pair of legs: coxa 84, femur and trochanter 191, tibia 151, tarsus 75, claw 24, digitules of claw 42. Claw very fine and slender; digitules of claw fine, with slightly expanded ends; tarsal digitules long, slender, with slightly expanded ends. Rostrum large, situated between the first pair of legs; rostral loop very short. Anal plates small, triangular, the two outer sides equal in length. Anal ring with six hairs. Around the margin of the body there is a double row of long sharp hairs. The derm on the ventral surface bears numerous long

filamentous glands, and on the dorsal surface there are several longitudinal rows of small round glands.

Larva (just hatched).—Elliptical, flat, reddish brown in colour; eyes large, conical, dark brown. Antennæ long, of six joints; joints 3 and 6 the longest and about equal in length. The body ends in two plates, each bearing one long terminal seta and several shorter hairs. The margin of the body is serrated and bears a simple row of rather long hairs. Legs long, slender, the digitules of claw and tarsus long and thin, with slightly expanded ends. Rostral loop not extending to the anal plates.

Hab. São Paulo. On the stems of *Smilax* sp.

Some small parasitic Diptera were bred from the ovisacs of this species.

[To be continued.]

BIBLIOGRAPHICAL NOTICES.

Studies in Fossil Botany. By DUKINFIELD HENRY SCOTT, M.A., Ph.D., F.R.S., F.L.S., F.G.S., Honorary Keeper of the Jodrell Laboratory, Royal Gardens, Kew. Containing 151 Illustrations. London: Adam and Charles Black, 1900. Pp. xiii, 533.

THE author is a distinguished member of the energetic band of workers in palæobotany whose labours have in recent years contributed to throw so much light on many obscure points of the vanished flora of geologic times. Dr. Scott was associated with the closing portion of the long scientific career of the late Professor Williamson, and is well acquainted with the collection brought together by that veteran palæobotanist; therefore it is not surprising that much of the information here presented has been drawn from specimens contained in that collection, now national property, in the Natural History Museum, Cromwell Road.

The volume is founded on a course of lectures given four years ago at University College, Gower Street, under the same title, but entirely recast in accordance with newer information which has been rendered accessible since these lectures were delivered. It is confined to setting out the results of inquiries of chief importance from a botanical standpoint relating to the two subkingdoms of Pteridophytes and Gymnosperms, all considerations of the lower cryptogams and the phanerogams being put aside.

The author explains the difference in the condition of plants preserved by incrustation and petrification—the former being most familiar to those people who visit geological collections, while the second is largely confined to the cabinets of specialists as admitting